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ABSTRACT

The DAVA (Directorate for Audiovisual Activities) evaluation model was developed for the U.S. Department of Defense to generate studies, decision models, standards, and directives, with outputs coordinated by the military departments that implement the decisions through the major commands and down to the installation level. The 3-level model is designed to support a projected range of users including instructors, media developers, managers, and policy makers; it has been implemented within the existing Defense Audiovisual Information System which furnishes consolidated, comparable audiovisual management data on production output and capacity, as well as cost expenditures, and permits sharing of audiovisual resource information throughout the Department of Defense. Appendices include prior studies of audiovisual activities, definitions, a bibliography on evaluation, an audiovisual product reporting form and a facilities questionnaire, a summary annual report, specifics of the total evaluation program, and a forecast for the next 10 years. (CMV)

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AN EVALUATION CONCEPT FOR AUDIOVISUAL
ACTIVITIES IN THE DEPARTMENT OF DEFENSE

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CONTENTS

Introduction	2
Scope of the Model	3
Development of the Model	4
Evaluation Requirements	7
Comparison of Existing Models	11
The DAVA Evaluation Model	16
The Defense Audiovisual Information System	25
Application of the Model	37
Appendix A Prior Studies of DoD AV Activities	41
Appendix B Audiovisual Definitions	43
Appendix C Bibliography on Evaluation	47
Appendix D AV Product Reporting Form	51
Appendix E AV Facilities Questionnaire	52
Appendix F Summary Annual Report	53
Appendix G Some Specifics of DoD Evaluation Program	63
Appendix H The Next Ten Years	75

AN EVALUATION CONCEPT FOR AUDIOVISUAL
ACTIVITIES IN THE DEPARTMENT OF DEFENSE

Introduction

The intent of this paper is to present a model for the evaluation of audiovisual activities within the Department of Defense (DoD).

Eight major studies of audiovisual activities within DoD have been conducted over the past 10 years. These studies have highlighted the magnitude of the effort (over \$300 million dollars annually) and the lack of any systematic evaluation policy, plan or procedure. Evaluation currently existing is sporadic and uncoordinated. It is frequently used to support or justify programs already initiated. The data is rarely used to modify or adapt an existing program. Thus evaluation becomes an added cost where it could realize positive cost benefits. The two-year interagency study of audiovisual activities completed by the White House Office of Telecommunications Policy in 1974 recommended each department or agency should evaluate a statistically adequate sample of its audiovisual support of education and training to determine the effectiveness of such programs with the intended audience.¹

Scope of the Model

Initially the evaluation system was intended to focus on audiovisual products. Specifically it was to address a problem identified in a 1974 DoD Task Force study that found: "Adequate procedures for systematic preproduction or postproduction evaluation of audiovisual software did not exist in DoD."² Two factors caused the scope of the model to be expanded to encompass the entire spectrum of audiovisual activities.

The first of these was the nature of the problem itself. Audiovisual products are but one of the outputs of the system. Any effective evaluation from a management viewpoint can not ignore the facilities, equipment and manpower aspects or the diverse functional program requirements such as training, intelligence, research documentation, they support. It is evident that the Department of Defense needs a mechanism for examining the requirements, acquisition, distribution and utilization of audiovisual activities that includes the systematic appraisal of resource availability and application in support of mission requirements in the most cost-effective manner.

The second and more pressing consideration was a requirement by the Office of Management and Budget for each Executive Department and Agency to submit a "Simple Summary Annual Report of Audiovisual Activities" to the

President, Congress and the public beginning in fiscal year 1976. The Department of Defense was tasked to chair an interagency task group to develop the format and policy for this report. Meeting this requirement again dictated a systems approach to the data collection and reporting procedures necessary for implementation.

Development of the Model

Since audiovisual is a supporting activity to enhance other program objectives, it presents an amorphous quality for analysis. Budgets, personnel, equipment, and even facilities are generally subsumed within organizations and therefore difficult to identify. Furthermore, the multi-purpose of many audiovisual activities creates problems in mission and performance analysis. The audiovisual area is additionally complicated by the lack of standard definitions.

Because of the lack of definition and form, a systems analysis approach was adopted. There are many definitions of a system but all emphasize the inter-relationships of parts to a whole. Because of the intense scrutiny by Congress and the private sector on DoD audiovisual activities, the definition by McGregor seems most appropriate because it includes survival: "A system is an assembly of interdependent parts (sub-systems) whose interaction determines its survival."³

A primary requirement in systems analysis is to develop some conceptual order for the mass of forces

and relationships so that the analysis may proceed systematically and with assurance that the major forces and relationships are considered and minor and irrelevant aspects ignored. A model is a logical expression of a required structure and process.⁴

By reflecting known facts and most significant elements in a situation, a model makes it easier to describe and comprehend the facts. It also tells the analyst what facts to get and how they relate to one another.

Evaluation may be defined as a systematic process for collecting and using information for decision making. It should provide a basis for planning programs, monitoring their progress, and assessing their outcomes.⁵ Accordingly, evaluation should facilitate management and improve the quality of audiovisual activities.

All of this seems very logical, even "commonsensical" as an approach to the problem. But how to build the model? Obviously, the sheer number of elements which may be considered gets quickly out of hand. A practical approach is needed to concentrate on a limited number of the most relevant factors.

Morris provides a useful guide in the structuring of models. He emphasized the gradual and iterative value in the development of models and sets forth three guides to help the model builder. First, begin simply. Rather than develop at one time a major, complex, and detailed model the process is more likely to be successful if the

model is built gradually. Second, previously developed logical structures can naturally be important foundations upon which to build more elaborate models and should be used in this way. Finally, a process of elaboration or enrichment should involve at least two looping or alteration procedures. One is the practice of working in a sort of tandem with the model itself and the data for the model. Each is tried separately and together in a fashion which avoids one gigantic effort at a grand test of a complex model, a practice not likely to be successful. Another is the continuous interplay, or looping, from assumptions and criteria needed to reach objectives, reworking of the objectives, and development of the appropriate models, to come to acceptable conclusions.⁶

Following these general guidelines, the design of the model was approached in a three-step effort. While this was generally a sequential process, there was a great deal of looping and interaction during the development stages.

A detailed analysis of the evaluation requirements in terms of the users and uses to be served was first conducted. A search of the literature to determine existing evaluation models was made to see how similar evaluation tasks had been addressed in different ways. Finally, data elements necessary at the various levels of evaluation were identified and the necessary management information system for data collection, reporting and retrieval was designed.

Evaluation Requirements

The evaluation requirements were determined from examining previous studies, reports, and files of audiovisual study groups and offices. The ten major studies analyzed are listed in Appendix A along with tables of areas addressed and a comparison of recommendations. To provide some boundaries for the task and a common basis for understanding, basic definitions were developed for audiovisual activities, products, equipment, facilities and services in coordination with the Military Departments and adopted as DoD standard terms.⁷ These definitions are listed in Appendix B.

Findings of the ten major studies of Department of Defense (DoD) audiovisual activities in the last 20 years show a surprising consistency in the:

- . Lack of management information and control.
- . Duplication of services.
- . Proliferation and under utilization of facilities.
- . Lack of software and hardware standardization.

Evaluation per se received only cursory attention, if indeed it was mentioned at all in the studies. However, for an activity to have been studied so much with so little indication of progress emphasizes the need for an evaluation model to assist management.

The review of the findings indicated the evaluation requirements were multi-dimensional in nature. Table I illustrates the dimensions and factors involved.

<u>Category</u>	<u>Function</u>	<u>Media</u>	<u>Process</u>	<u>Level</u>
Equipment	Training	MOPIC	Acquisition	Department of Defense/ Military Departments
Facilities	Education	Television	Production	Major Functional/ Operational
Products & Services	Research & Development	Audio	Distribution	Installation/ Facility
Personnel	Intelligence	Still Photo	Utilization	
	Specialized Medical	Graphics	Evaluation	
	Information	Multi-media	Management	
	Entertainment			
	Documentation			
	Recruiting			
	Administration			

Table I. Factors to be Considered in Evaluation

The dimensions and factors are not, of course, mutually exclusive nor are they necessarily inclusive. Other categorical schemes could be developed and elements expanded or compressed in different logical groupings. The examination of the evaluation requirements does however point out the degree of sophistication needed in designing an appropriate model.

To look at the problem another way, it may be helpful to show the organizational structure of the Department of Defense and the office responsible for providing policy guidance for audiovisual activities. Figure 1 is a graphic outline of DoD structure. The Directorate for Audiovisual Activities (DAVA) is a staff element within the Office of the Secretary of Defense. It provides the usual staff functions of planning, policy formulation and monitoring, but does not exercise direct management of audiovisual facilities or programs. The management function is vested in the Military Departments (Army, Navy and Air Force) and the various DoD Agencies such as Defense Intelligence Agency (DIA), Defense Supply Agency (DSA), Defense Communications Agency (DCA), etc.

In addition to providing the policy direction for audiovisual management by the DoD Components, DAVA is charged with coordinating audiovisual activities to insure appropriate levels of audiovisual support and to reduce unnecessary duplication or proliferation of materials, services or facilities. The office is also responsible for

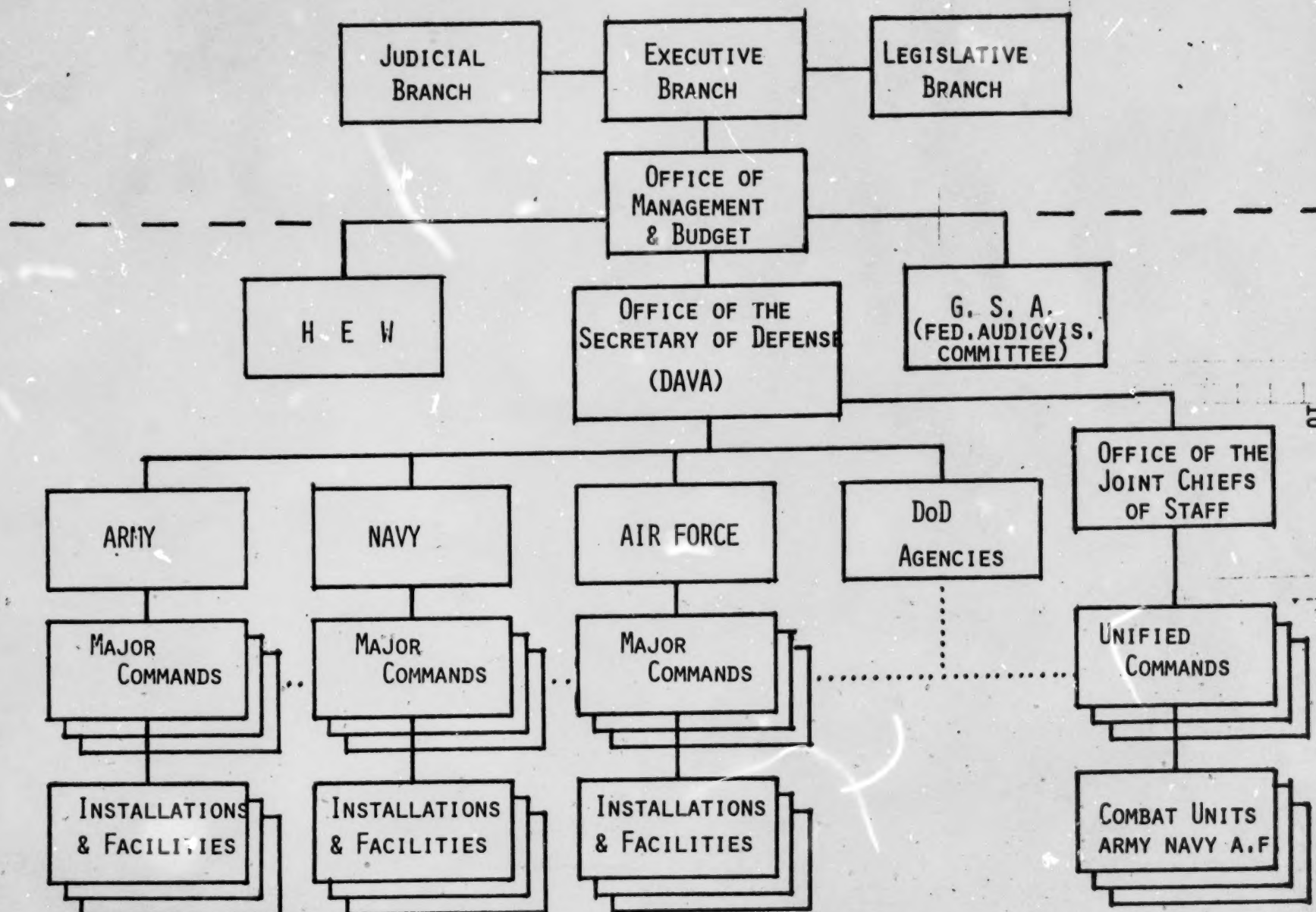


Figure 1. DoD Structure.

maintaining a standardization program and an automated audiovisual management information system. It serves as the focal point for coordination and liaison with the public, industry and other government institutions in matters relating to audiovisual activities.

Figure 2 is a conceptual outline of the functional areas of responsibility and serves to again illustrate the multi-dimensional characteristics the audiovisual evaluation model must encompass.

Comparison of Existing Models

There is a wealth of available literature on the theoretical considerations of evaluation models. A partial bibliography is provided at Appendix C.

Scriven suggests three (3) kinds of judgement mechanisms in common use.⁸ These are: subjective; relative merit; criteria or goals. Most systems of evaluation attempt to minimize subjective judgments, or relegate such judgments to a panel of experts. Stake, referring to education systems, asserts that evaluation as currently practiced is "the great American cover-up".⁹ His assumption appears equally valid to current practice in DoD audiovisual evaluation efforts.

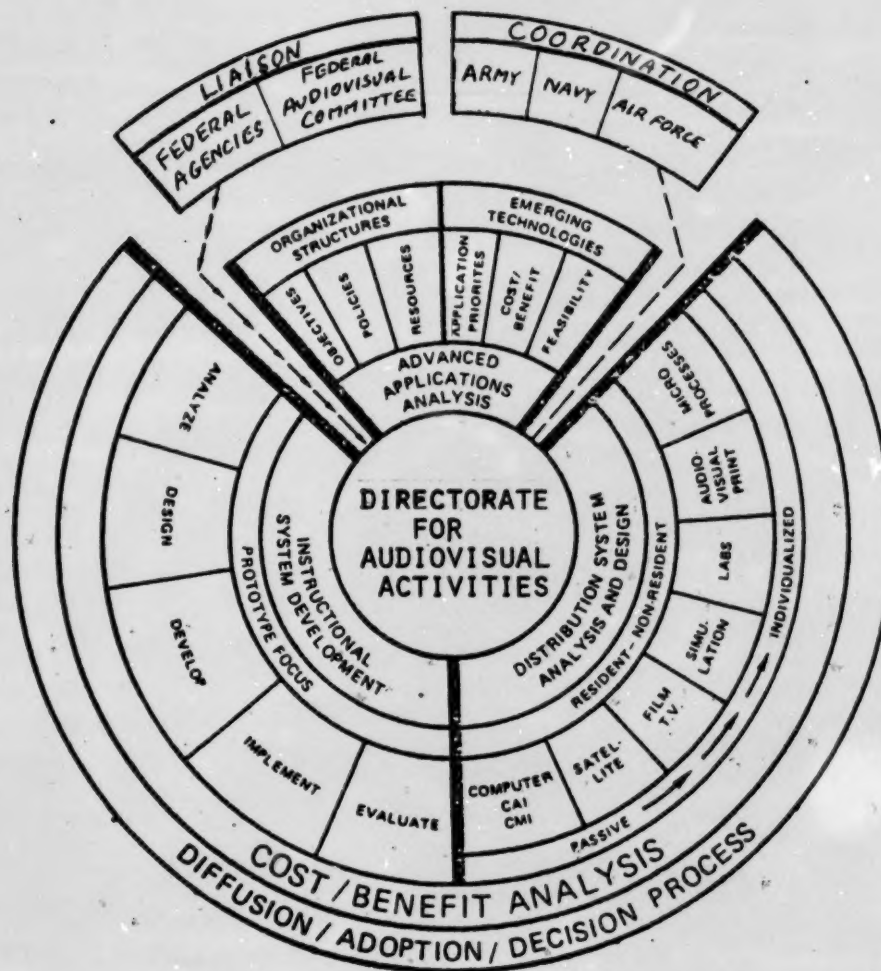


Figure 2. Functional Areas of the Directorate for AudioVisual Activities.

The standards against which evaluative judgments are made may be subjective, or objective. Subjective standards are non-specific and differ widely from one judge to another. Objective standards use clearly established criteria as the basis for judgement. If carefully designed, objective criteria give consistent results from an array of judges regardless of experience or bias.

The meaningful standard for comparing models is utility and this of course depends on the situation in which it is to be used.¹⁰ In reviewing the literature on evaluation models, a key consideration was also given to the degree of quantification of the processes.

Although many models were surveyed in both instructional technology and management areas, four were considered in detail and elements from each were incorporated or at least influenced the design of the specific model for DoD audiovisual activities evaluation. The four were: Stake's "Countenance Model," Stufflebeam's "C.I.P.P. Model," Provus' "Discrepancy Model," and Program Evaluation and Review Technique (P.E.R.T.).

Each of these models addresses the evaluation task in a slightly different way. For example, Stake's "Countenance Model" places key emphasis upon description and judgment data. Stufflebeam's "C.I.P.P. Model" places the major emphasis upon facilitation of decision making. Provus' "Discrepancy Model" places the major focus upon discrepancies between the intents and the outcomes of the program both in terms of the processes and products of

that program.

Of the various management systems, perhaps P.E.R.T. is most useful for planning projects or programs. It acts as a manager's tool for defining and coordinating what must be done to successfully accomplish the objectives of a project on time. However, this system is only appropriate when several conditions are met.

First, there must be a clearly defined end objective or product. Second, the events or activities within the project must move in a sequential order; in a once-through, non-repetitive process. Third, the manager must have control over all of the necessary resources, including the time necessary to complete the project and those necessary to attain the level of quality expected of the project. This latter refers to authority to employ appropriate staff, arrange for necessary facilities and so forth. Having control means that resources can be manipulated by the manager in some way.

Since the evaluation requirements for audio-visual activities do not universally meet these conditions, application of the P.E.R.T. technique is limited to certain situations where priority or emphasis allows concentration of authority and control at OSD level. It is, however, a powerful managerial tool for defining and coordinating what must be done to successfully accomplish clearly defined objectives of a project on time. The statistical qualities of P.E.R.T., the networking procedures, and network analysis and reallocation

techniques all provide the program manager with a visible schedule which must be met for successful completion of the project or program. Because it does make them visible, it facilitates the adaptive decisions necessary to insure the success of the project. Its use by operational elements should be encouraged for audiovisual programs.

The other evaluation models may be applied to any project or any program either large or small. They address all concerns of programs and projects, including preconditions of the environment in which the project is conducted, the activities of the project and the outcomes of the project. However, they address project management only in a peripheral way.

A few of the major points of these models are presented and compared primarily to indicate the role they played in the design of the DAVA model. The countenance model is primarily concerned with description and judgement of programs or projects. Stake felt that for a program to be evaluated, it must be fully described and fully judged. Judgements in this case speak to the relative worth or value of the program. The model is used to identify the differences that exist between what was intended and what was observed and between the outcomes of the program and some external criteria. Although the model may be applied in both formative evaluation, for program improvement, and summative evaluation, for a

general assessment of a described program, the nature of the description and judgement appear to have most utility in conducting summative or terminal types of evaluation.

The C.I.P.P. model is designed to facilitate continuous decision-making which in turn sensitizes the operation to feedback from the evaluation. Four evaluation strategies are identified in the C.I.P.P. model. They are context, input, process, and product. Use of the model for evaluation calls for a design that will identify alternatives for the decision maker, or for various decision makers at different levels, at each of these different points in time of a project, i.e., the context, input, process, product.

The Provus model focuses on discrepancies between arbitrary, or project, standards and actual operations and outcomes; hence its title, "Discrepancy model." It may be classified as a "Process" evaluation model in that it examines events and activities in progress, not as static occurrences. This makes the model a powerful but difficult model to operationalize. Again, as with the C.I.P.P. model, the emphasis is on adaptive decision-making by various decision-makers within a given program or project.

The DAVA Evaluation Model

Clearly, the DAVA Evaluation Model should consider a variety of factors, and operate as a continuing

relationships between various levels of evaluation. Most often, these schemes suggest a sequential, systematic progression of decision levels, based on information obtained from local program or project operations.

Additional factors needed by some decision-makers include scheduling and time relationships which can be depicted in flow charts such as P.E.R.T. and the critical path method.

Typically, many diversified activities contribute to completing a program according to a pre-determined schedule. There are also many uncertainties associated with these activities. P.E.R.T. is a system that statistically presents knowledge about these uncertainties. The basic elements of P.E.R.T. are project events and project activities. An event represents the start or completion of a task while an activity represents the process necessary to complete a task. For example, writing a report is an activity but completion of a report is an event. P.E.R.T. events do not consume time or resources. They represent points in time and nothing more. For example, the statement "organizing slides for presentation" is an activity. It uses both time and resources. Event statements related to this activity might be "organization of slides started," or "organization of slides completed."

The three criteria which a P.E.R.T. event must meet are (1) it is a significant point in the project;

- (2) it signifies the start or completion of a task; and
- (3) it does not consume time or resources.

Planning, Programming, Budgeting System (PPBS) incorporates analytical tools for long range planning and cost benefit analysis to support the management process. It was developed by the RAND Corporation and adopted by DoD in 1961. PPBS considers the relative cost-benefits that would result from alternative strategies. It makes full use of the so-called systems approach which can be summarized as follows:

- (1) The entire management decision process will be facilitated through the instituting of a system with discipline and improved information flow.
- (2) Officials will be provided with total current and future resource implications of alternative courses of action.
- (3) The output of "top echelon" officials will be utilized more effectively by enabling them to focus on major objectives, policies, and resource decisions.
- (4) The likelihood of crisis management will be lessened through the early identification of potential problems.
- (5) The total management information needs will be defined and integrated.
- (6) Program justification to the public will be improved; legislators will be furnished more adequate information to justify requests in the competition for funds.

- (7) Public relationships will be facilitated by improving visibility of objectives and the resources available to accomplish the objectives.
- (8) The use of a systems approach will eliminate the piecemeal, fragmented, and last minute planning and evaluation which tends to occur under present practices.
- (9) Management will make more effective decisions because of the availability of concrete and relevant specific data.¹¹

The DAVA Evaluation Model has borrowed liberally from all of these concepts. A graphic representation of the model is presented at Figure 3. It consists of dual pyramids one of which represents the basic resource inputs of money, manpower, material, and facilities. The second pyramid reflects audiovisual outputs in terms of products and services. The two pyramids are linked by an interactive information system that provides a hierarchical collection, storage and processing with automated source data input and unrestricted levels of retrieval.

The DAVA model has three levels. The top levels deal primarily with information. The Office of the Secretary of Defense, of which DAVA is a part, provides policy guidance. The Military Departments and Major Commands are the managers of the Defense establishment. Audiovisual operations, including production and audiovisual services, take place in the various military posts, camps, and stations, designated on the management model as installations/facilities. There is a constant flow of communication between these levels resulting in the generation of require-

DEPARTMENT OF DEFENSE - AV MANAGEMENT MODEL

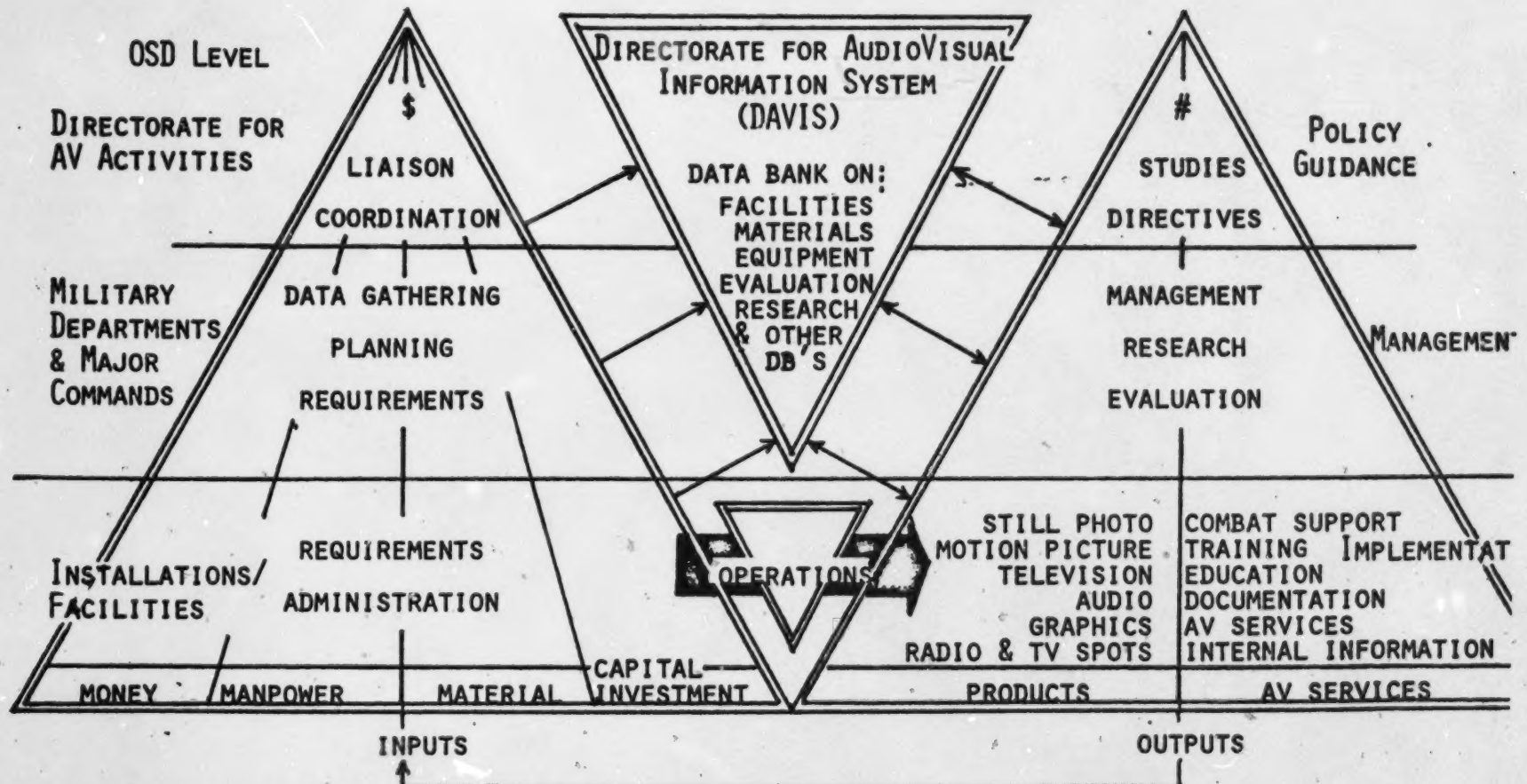


Figure 3. DAVA Evaluation Model.

ments for AV operations. Much of the planning information is obtained from the DAVIS data bases.

The outputs are defined for each level. DAVA generates studies, decision models, standards, and directives. These are coordinated with the military departments who implement the decisions through the major commands, and down to the installation level. Research and evaluation are a function of management, and their outputs provide data for future planning and requirements. Thus, the model at all levels provides feedback from the outputs to the inputs.

A crucial factor in the feedback loop is the DAVIS data bank of facilities, materials, equipment, evaluation, and research. It provides up to date and accurate summary data for decision-making and management as well as specific information for users in the field.

The system on a day to day basis provides information on cost, personnel, products, equipment, and facilities when requested by Congress, the Office of Management and Budget, the Office of the Secretary of Defense, the Military Departments, Major Commands, and Installations, and requests from the public through the Public Affairs Office of the Department of Defense.

The model is designed to support a projected range of users - instructors, media developers, managers, and policy makers as depicted in Table II.

<u>Judgement</u>	<u>Level</u>	<u>Criteria</u>	<u>Evaluation</u>
Budget/ Program Oriented	DoD	Resource Requirements Efficient, effective comptable	Auditors Policy makers
Function/ Media Oriented	Services Training Cmds. Service Schools	Specific to Current Service needs Cost-effective Accurate, rele- vant, effective	Managers Specialists in Evaluation Education Experts in instruction, subject matter
Utilization Oriented	Instructors/ Media Specialists Students	Available, reliable easy to administer Simple to use, clear communi- cation	Opinionaires Field test

Table II: CONSIDERATIONS RELATED TO JUDGES AND CRITERIA
FOR INSTRUCTIONAL MEDIA

The model accommodates the many dimensions of audiovisual activities and permits both global evaluation and specialized areas of consideration with the criterion data appropriate to the level and the subject area. Regardless of level, the evaluations are categorized under a broad scheme of Input-Process-Output as illustrated in Table III.

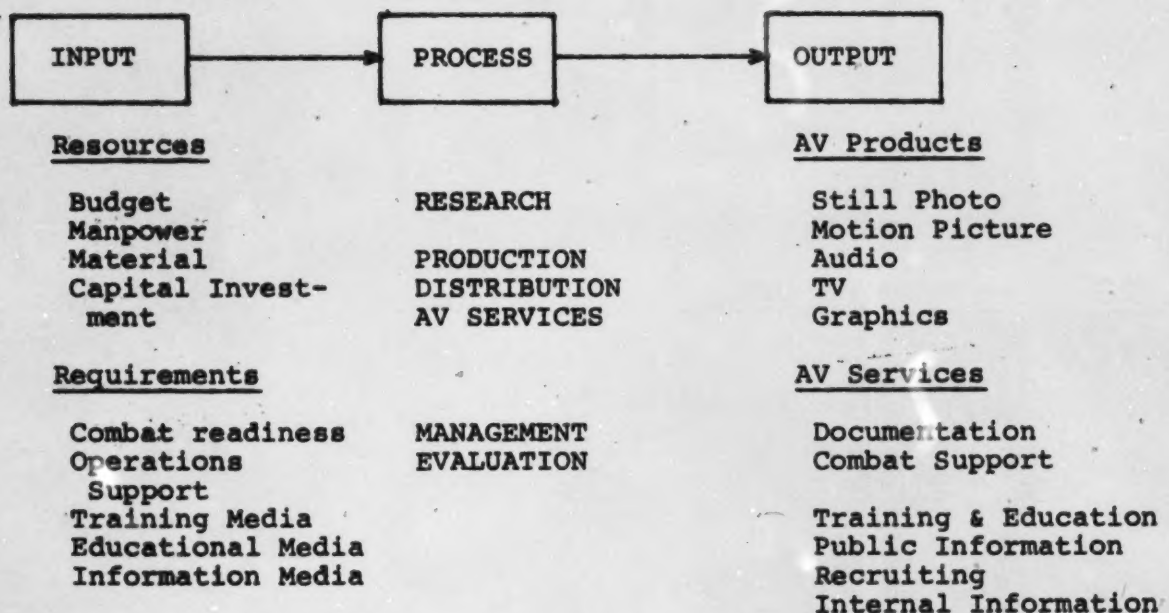


Table III: EVALUATION CATEGORIES

The model requires some adaptation according to the specific purpose as appropriate. For example, a research project might include the project manager and a statistician; facilities evaluation should include an architect; materials evaluation should include an instructional technologist, and so on. It may be desirable to identify separately the judgments of users, managers, policy makers, external evaluators and auditors. The user criteria in Table 2 suggests that emphases at the higher levels is related to cost, at middle management toward information, and at the classroom level to utilization factors.

The Defense Audiovisual Information System(DAVIS)

The key to an effective evaluation of audiovisual activities is the availability of current, accurate and comparable information on resource requirements, acquisition and utilization. A priority management objective of the Directorate for Audiovisual Activities has been the establishment of an automated data processing system with a central processing unit and communication network for consolidated data banks of audiovisual management and resource information.

A major impact in the design of the Defense audiovisual evaluation model was the consideration of data reporting and collection costs necessary for its support. The existing Defense Audiovisual Information System was examined and the model was designed in so far possible to use existing or planned information sources. Consequently, a brief description of the Defense Audiovisual Information system will be helpful in understanding some of the elements of the evaluation model and how it is anticipated the model will be exercised to assist in audiovisual decision-making.

The purpose of the system is to furnish consolidated, comparable audiovisual management data on production output and capacity, cost expenditures, utilization and future requirements for audiovisual managers at OSD and the Military Departments, and to permit sharing of audio-

visual resources information between educators, trainers, and program managers throughout DoD. A conceptual diagram of the system is shown in Figure 4.

In developing the system requirements, emphasis was placed on the time-shared use of an existing hardware and software system. Not only did this provide the minimum development costs, but also permitted rapid development of the necessary data bases.*

To achieve maximum benefits from the system, access must be available to managers, educators and trainers in the field. To that end, an agreement was negotiated with the National Library of Medicine (NLM) to permit interface of the computer to the NLM communication network provided by the Tymshare Corporation. This network link provides two significant capabilities:

- . Immediate low cost communications capability throughout the United States with a satellite link to Europe that will provide access for the training community to the audiovisual information data base.
- . A communications "common denominator" for eventually interfacing individual systems or networks together. This will permit terminals for one computer to access many different participating systems.

*A detailed description of the system concept is contained in the ASD(M&RA) Audiovisual Management Task Force Report, 1974, pp. 51-65.

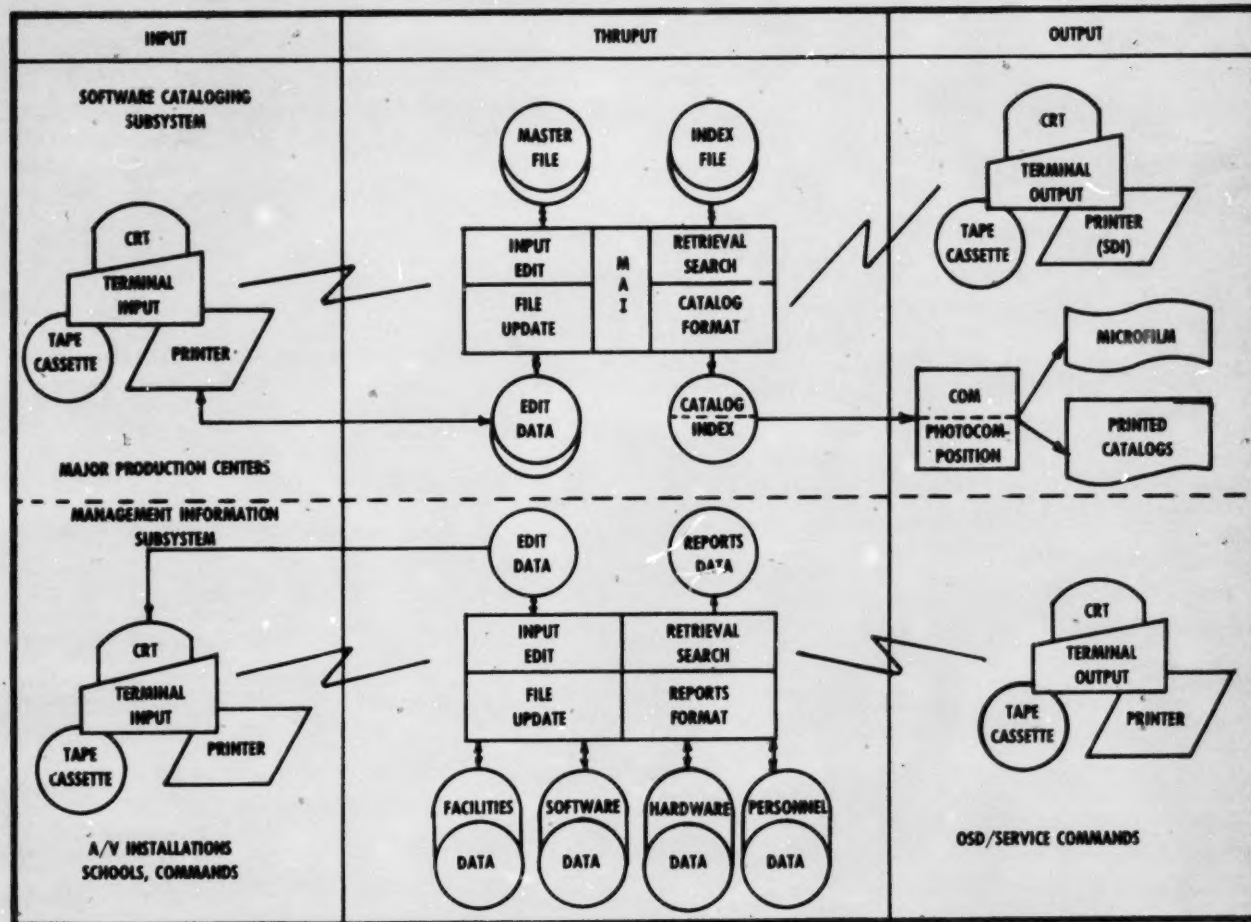


Figure 4. Defense AudioVisual Information System (DAVIS)

Through the use of a cooperative communication network, access is available not only to DoD audiovisual data files, but to other useful data bases within DoD such as the Defense Documentation Center and between the Military Services through "local" training materials files, and the Air Force Instructional Systems Design data base.¹² It can also provide the interface to information resources outside the DoD such as the National Library of Medicine audiovisual and literature files, the National Audiovisual Center data base and Educational Resources Information Centers maintained by the National Institute of Education. Figures 5 and 6 illustrate the structure of a DAVIS distributed network and partial listing of potential participants.

The audiovisual information systems development effort will continue to be directed toward cooperation and coordination in the sharing and exploitation of existing information resources rather than the creation or duplication of systems and data banks.¹³

The audiovisual central data bank is organized into three functional data bases - audiovisual products, equipment and facilities.

The primary purpose of the audiovisual products file is to provide a capability for coordination and consolidation of joint service audiovisual requirements including standard reporting format, common indexing

DISTRIBUTED AUDIOVISUAL INFORMATION NETWORK

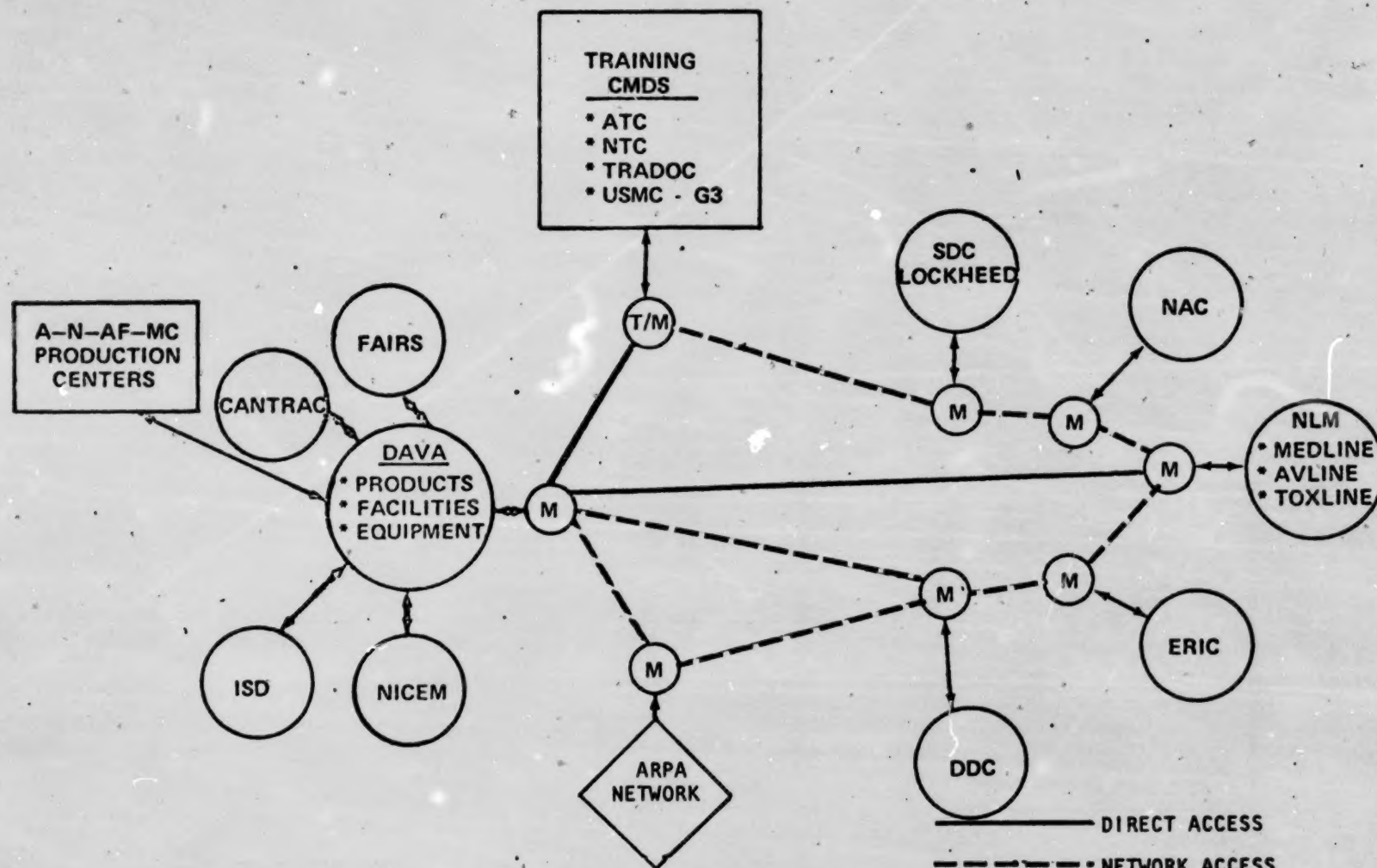


Figure 5. Distributed Audiovisual Information Network.

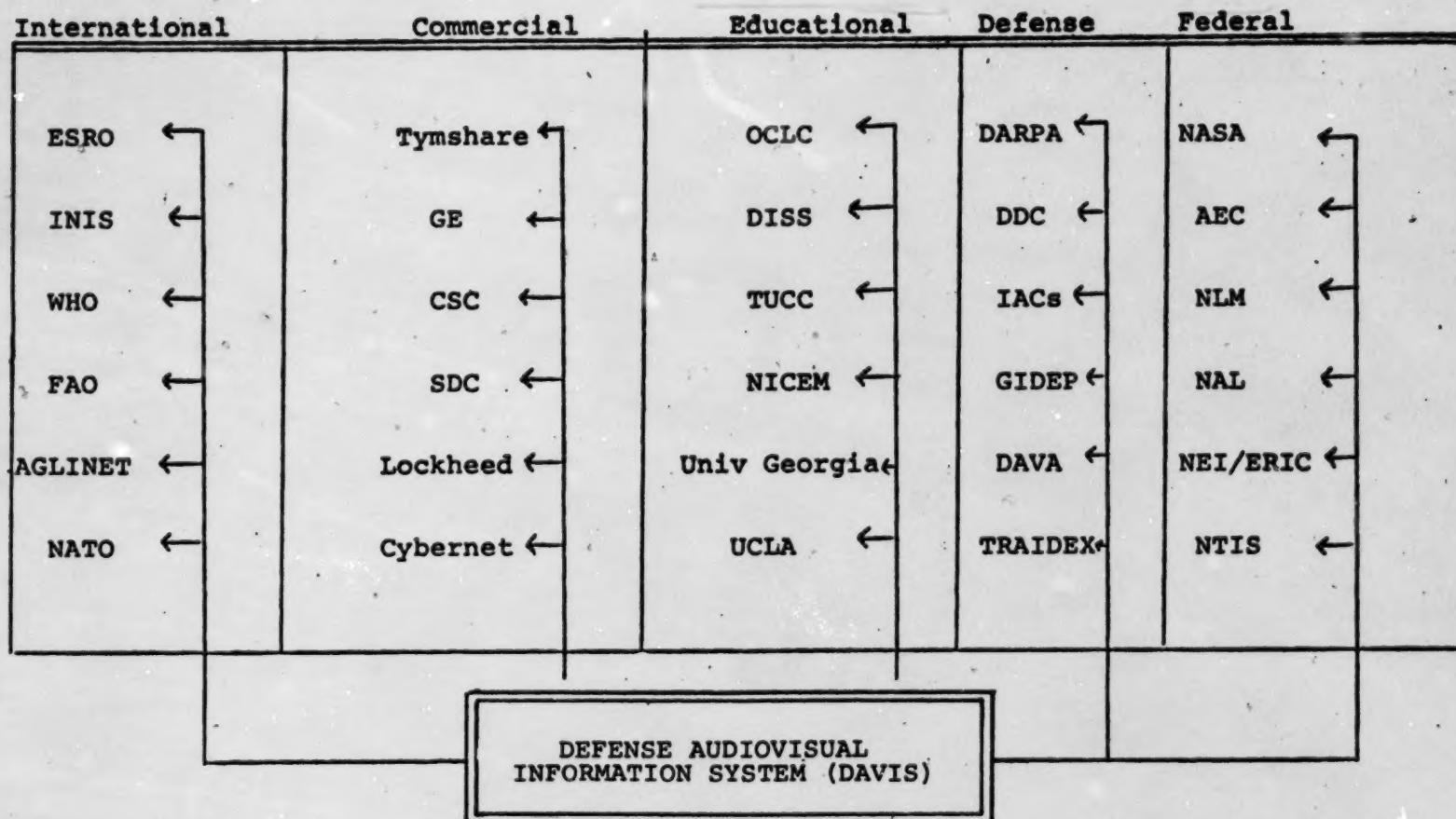


Figure 6. Potential Network Participants.

scheme, central inventory and integrated catalogs. The objective is to reduce the duplication of audiovisual products within the Department of Defense while improving utilization of existing products in support of common training, education and information requirements of the Military Services.

Existing inventories of audiovisual program materials from each Service have been reformatted under a common indexing scheme so that users in the field will have access to all material that might be used to support their programs. A central catalog system is being established by subject category and media type. The catalog listings will contain the content synopsis, target audience and specific educational objective of the program as well as the necessary bio-data for use.

The first payoff of the system will be the availability within six months of a consolidated catalog of educational materials, topically arranged, indexed and cross referenced by originating Service and produced either as hardcopy or microfiche for volume distribution.

By the end of FY 76, it is planned for the Services to begin use of the standardized forms for reporting the production and availability of training materials at the local level. Presently, information regarding these materials is not systematically disseminated

even though other activities could share the use of many of these programs. A copy of the reporting form is at Appendix D and serves to illustrate the data elements available in the file.

To keep the central file current and also provide program managers and production facilities with information on productions in progress or in the planning stage, a work unit file is also being provided in the central data bank. A communications network with terminal input and output capability will provide audiovisual managers with on-line data retrieval and collection.

A usage and summative evaluation reporting system will also be designed to provide the data record for program management review and analysis. To support program managers on media selection and cost comparisons, a standardized cost reporting system with audit and review procedures is being established to furnish a data base for reliable comparison of acquisition costs and analysis of production method efficiency.

Development of the central inventory file, common indexing scheme and standard reporting procedures has been a cooperative effort with the Military Departments to insure the system will support management efforts at all levels. Coordination is being maintained with the National Audiovisual Center to insure the system will be compatible with their indexing requirements so that

appropriate materials will be mutually accessible throughout the Federal Government and for sale and rental to the public.

The primary objective of the data bank is to provide a simple, efficient procedure for access of information to users of audiovisual materials with a data record for management analysis. The central data facility will have three distinct functions:

- . A central inventory of available materials
- . A work unit program of projects planned and in production
- . A management information data bank and facilities register

To achieve the maximum benefits of an inventory information exchange, the program materials must be available in compatible formats. With the advance in audiovisual technology, the number of formats has blossomed. The Defense Task Force study was especially critical of the proliferation of different types of audiovisual equipment with unique format requirements that precluded the use of common programs between the Services. The example of small format video tape equipment was particularly glaring.¹⁴

A principal evaluation objective in the audiovisual equipment area is the establishment of audiovisual product format standards and developing coordinated test and equipment performance criteria. The purpose is to reduce unnecessary proliferation and duplication of

audiovisual equipment in the DoD while maintaining the necessary audiovisual support capability.

To accomplish this goal, a standardization committee with representatives from each Military Service has been established and is actively working to reduce the number of types of equipment that are actually performing the same functions. The committee has established as a priority of effort the standardization of audiovisual formats as being the key to effective equipment standardization. Standards on videotape, audio tape and audio cartridges are currently being circulated with industry and the technical societies and within DoD for comment. The Services have been assigned the task of evaluating video disc recording systems, a new TV format and certain still processing equipment now being developed by industry. The objective is to keep up with the state-of-the-art and to have necessary standards established concurrently with the industry's marketing efforts.

Coordination is being effected on all standards with the General Services Administration. Where appropriate, the DoD standards will be adopted as Federal Standards.

The Defense committee is also working on the standardization of audiovisual equipment testing criteria to eliminate duplicate efforts in this area. The committee will establish standard performance requirements for audiovisual equipment used within DoD.

The feasibility of naming a single agency for life-cycle management of each of the audiovisual equipment classes is being examined. This would insure the consolidation of requirements, centralized procurement, and DoD-wide inventory control of audiovisual items.

The centralized audiovisual equipment file will assist these evaluation and management efforts. Audiovisual equipment inventories are presently fragmented and difficult to identify or use because of the lack of common nomenclatures and data elements. Seven large files have been located and four have been converted and placed in the DAVIS computer. Efforts are now underway to establish a universal set of data elements and standard reporting procedures.

The first centralized data base established by DAVA was of audiovisual facilities. The Defense Task Force study concluded that there was an excessive proliferation of the number and types of audiovisual facilities which has resulted in the duplication and underutilization of capabilities.¹⁵ Part of the problem is that too many dedicated facilities have been established. Some of these facilities could be closed and functions consolidated if support agreements were established to provide services to area customers.

The principal evaluation objectives in the facilities area are to establish policy guidance on

coordination and consolidation of audiovisual support functions and develop criteria for the definition, classification and justification of audiovisual facilities. The purpose is to eliminate duplication and proliferation of audiovisual facilities and services while maintaining support capabilities to meet mission requirements.

But, before Defense can take positive action on facilities consolidation, they must first be identified and located. This is no problem for the modern, 350,000 square foot complex of the Aerospace Audiovisual Support Center at Norton Air Force Base. But what of the many facilities never reported?

To answer this and other questions, a survey form was developed and circulated to the Military Services and Defense Agencies to identify all facilities providing an audiovisual service or producing an audiovisual product.

Data provided, in addition to location, includes mission justification, capability, utilization, cost, and production figures. A copy of the questionnaire is at Appendix E.

This data is now available to audiovisual managers at all levels. An annual reporting requirement will keep the data file current and permit the publication of a comprehensive Defense audiovisual facilities register. The data base will also provide the necessary evaluation tools for development of work unit measurement standards

and personnel staffing criteria that can be used for future audit guidelines.

To assist the evaluation effort, a computerized decision model has been developed.¹⁶ It facilitates reviewing data, weighing alternatives, and projecting the impact of change. It has already been used to assist in decision making where facility consolidation was considered desirable. The model has considerable flexibility since weights can be assigned to the various factors according to the goals and priorities of the user. This enables the model to be tailored to the policies, requirements, and operating procedures of a specific Service, Command, or geographic area. The computer affords the opportunity to explore a variety of alternatives in a rapid and systematic manner. The model was designed for audiovisual facilities evaluation, however, the basic model could be extended to other commercial-industrial type activities with additional programming. The DoD Directorate for Audiovisual Activities plans to apply the model in a series of studies of high density audiovisual operations.

Application of the Model

The Department of Defense is embarked on a long-range program for improving audiovisual management. A significant part of that effort must rest in an aggressive evaluation program. The model proposed here represents an initial design effort. Its value will be tested by its

utility in implementation. It will most certainly be refined and modified in application. It does provide a framework by which an evaluation plan can be developed.

Given the scope and complexity of audiovisual activities in the Defense establishment, the development of the evaluation system must proceed with a somewhat piecemeal approach. A number of pilot efforts are presently underway that will hopefully demonstrate the value of a systematic evaluation procedure in the way that is most easily understood - hard dollars saved. Already, the audiovisual facilities model is demonstrating its power as an evaluation tool in complex decisions for consolidation.

A joint-Service panel of judges has demonstrated the feasibility of consolidating audiovisual requirements for a common interest subject area (the drug and alcohol abuse program) that has saved 1.3 million dollars over projected uncoordinated expenditures. Unfortunately no measurements have been made as yet on the effectiveness of the materials selected and this will be a future evaluation requirement. Seven other "common-interest" subject areas have been identified for expansion of this concept. They are: Professional medical/dental, chaplains, law enforcement, safety, race relations/equal opportunity, military benefits and internal information, and general educational development.

Design of the DAVA evaluation model has relied heavily on hierarchical data collection and reporting. While every effort was made to use existing information data sources, the process of examining evaluation requirements pointed out a number of essential gaps in the present information system. These data elements have been incorporated in the concurrent development of a collection instrument. A draft of the report format is included at Appendix F. It is designed to replace the current facilities report form (Appendix E) and will constitute an annual audiovisual activities report that will also serve as the data base for the required Annual Audiovisual Summary Report for the President, Congress and the public. Included at Appendix G are materials with specifics of the DoD evaluation program for products, equipment and facilities.

The evaluation effort cannot be totally directed toward present audiovisual programs or levels of support. Its greatest value lies in the assistance it can provide, for looking to future requirements. Appendix H is a listing of some of the future questions that must be addressed in the evaluation program.

While it is certainly too early to mark any measurable success in the implementation of an effective audiovisual evaluation program for the Department of Defense, the support and participation of the Military

Departments has been gratifying. In addition, there are some factors present that were missing in previous attempts in this area.

First of all, an adequate professional staff has been provided with the necessary management support to provide an integrated approach to the entire spectrum of audiovisual evaluation from program materials to equipment and facilities. Secondly, the essential steps have been taken to provide an information system and data base essential to support such a program.

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APPENDIX A

STUDIES, REPORTS, AND FILES OF PRECEDING AUDIO-VISUAL COMMITTEES AND STUDY GROUPS

.1954	Agnew Committee (motion Picture Industry)
.1965-67	ASD(Administration) Audio-Visual Study
.1969	Army Study
.1971	House Appropriations Subcommittee Report
.1972	General Accounting Office Report
.1972	"Goldwater Report"
.1973	General Services Administration Interagency Study'
.1974	Office of Telecommunications Policy Report
.1974	ASD(M&RA) Audiovisual Management Task Force Report

Table I is a comparative analysis of areas addressed by previous research. Table II is a compilation of recommendations of prior studies by functional category.

TABLE I
SCOPE OF RESEARCH
PRIOR AUDIO-VISUAL STUDIES

(1) Items Included

- a) Facilities
- b) Still photography
- c) Documentation
- d) Distribution
- e) Motion Picture production/processing
- f) Television
- g) Depositories
- h) Instrumentation
- i) Training
- j) Sound recording or radio
- k) Display
- l) Graphic Arts
- m) Personnel
- n) Floor space occupied
- o) Equipment inventory
- p) Contracts over \$5,000
- q) Job inventory by skill title

(2) Items Excluded

- a) Intelligence
- b) Reconnaissance
- c) Mapping
- d) Command/Communications/Control of Operational Forces
- e) Surveillance
- f) Meteorology
- g) X-Ray
- h) Specialized Medicine
- i) Graphic Arts
- j) AAFMPS
- k) AFRTS
- l) Civil Defense
- m) Display
- n) Research & Development
- o) Instrumentation
- p) Minor Facilities

	1954 Agnew Committee	1967 ASD(A)	1969 Army	1971 House Appropriations Subcommittee	1971-72 House Operations Subcommittee	1972 General Accounting Office	1972 "Goldwater Report"	1973 GSA Interagency Study	1974 Office of Telecommunications Policy	1974 ASD(MERA)	Task Force Report
a) Facilities	X	X	X	X			X			X	
b) Still photography	X	X	X	X			X		X	X	
c) Documentation	X	X	X	X			X		X	X	
d) Distribution	X	X	X	X			X		X	X	
e) Motion Picture production/processing	X	X	X	X	X	X	X		X	X	
f) Television		X	X	X		X	X		X	X	
g) Depositories	X	X	X	X			X		X	X	
h) Instrumentation	X	X	X	X			X			X	
i) Training	X	X	X	X		X	X		X	X	
j) Sound recording or radio			X	X		X	X		X	X	
k) Display				X			X		X		
l) Graphic Arts			X	X			X				
m) Personnel	X	X	X				X	X			
n) Floor space occupied				X			X	X			
o) Equipment inventory						X	X			X	
p) Contracts over \$5,000						X	X			X	
q) Job inventory by skill title						X					
a) Intelligence		X	X	X						X	
b) Reconnaissance	X	X		X						X	
c) Mapping	X	X									
d) Command/Communications/Control of Operational Forces											
e) Surveillance		X									
f) Meteorology		X									
g) X-Ray		X									
h) Specialized Medicine		X									
i) Graphic Arts		X									
j) AAFMPS		X								X	
k) AFRTS		X									
l) Civil Defense		X									
m) Display			X								
n) Research & Development			X			X					
o) Instrumentation						X					
p) Minor Facilities						X					

TABLE II
RECOMMENDATIONS
PRIOR AUDIO-VISUAL STUDIES

- (1) PERSONNEL
 - a) Convert Military to civilian spaces
 - b) Provide guidance on use of Govt personnel as actors
 - c) Require Union pay scale
 - d) Develop personnel staffing guide
- (2) TRAINING
 - a) Single Service AV School
 - b) Improve AV Schooling
- (3) SUPPLY
 - a) Improve system response
 - b) Standardize equipment
 - c) Establish joint CCTV test program
 - d) Establish national scope AV Services contract
 - e) Use Defense General Supply system for supplies
- (4) FACILITIES
 - a) Consolidate and/or joint use
- (5) PRODUCTION/PROCESSING
 - a) Need guidance for "IN" vs. "OUT" production
 - b) More "IN" processing
 - c) Phase out "IN" processing/Production capability
 - d) Limit "IN" production
 - e) Require pre-production approval
- (6) DISTRIBUTION
 - a) "Historical" Film to Archives
 - b) Establish film and video tape program catalogs
 - c) Monitor tape libraries
 - d) Consolidate libraries on a regional basis
 - e) Improve system
- (7) MANAGEMENT
 - a) Manage photo instrumentation
 - b) Centralize control
 - c) Establish data base
 - d) Evaluate AV efforts
 - e) Establish and distribute management objectives
- (8) AV Information Systems

	1954 Agnew Committee	1967 ASD(A)	1969 Army	1971 House Appropriations Subcommittee Report	1971-72 House Operations Subcommittee Study	1972 General Accounting Office Report	1972 "Goldwater Report"	1973 GSA Interagency Study	1974 Office of Telecommunications Policy	1974 ASD (M&RA)	Task Force Report
	X	X							X		
			X				X				
	X										
		X									
			X								
		X	X								X
	X	X					X	X	X	X	
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	X				X						X
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											X
			X								X
	X	X					X				X
									X	X	
									X	X	
		X									X
											X

APPENDIX B

DEFINITIONS

Audiovisual Activities provide an audiovisual service or produce an audiovisual product. They include equipment, products, facilities, personnel, and procurement as they pertain to: (1) still and motion picture photography (including processing); television and audio production and reproduction; depositories; distribution; presentation systems; graphic arts; training aids; and (2) training and education of audiovisual personnel. They do not encompass (1) the audiovisual information collected exclusively for reconnaissance and intelligence purposes, and equipment integrated in a reconnaissance collecting vehicle and (2) photomechanical reproduction, cartography, X-rays and microfilm/microfiche production, and (3) audiovisual products resultant from criminal investigation activities and other legal evidentiary audiovisual products.

Audiovisual Products: Material containing sound or imagery for conveying a message. Refers to still photography, graphic arts, still projectuals (overhead transparencies, slides, film strips, etc.), motion pictures (film, video tape and disc), audio recording (tape and disc), and combinations such as multi-media.

Audiovisual Equipment: Equipment used for the recording, production, processing and exhibition of audiovisual products.

Audiovisual Facilities: Physical plants which produce an audiovisual product or provide an audiovisual service.

Audiovisual Services: Those functions performed in the production, utilization, distribution and storage of audiovisual materials such as tape or film editing, scripting, film processing, sound recording, audiovisual media depository and records center operations; reproduction and distribution of products; loan of audiovisual products and equipment; presentation of television, audio, still and motion visual information and design or consulting support for audiovisual users.

APPENDIX C

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APPENDIX D
PRODUCT REPORTING FORM

A. YES - U.S. FUNDING B. Yes - Government Only C. Yes - DOD Only D. No - Commercial Adopted E. No - Classified		33B. Organization _____ _____ 33C. Telephone Commercial _____ 33D. Telephone Autovon _____																										
DISTRIBUTION (Initial) 34A. No. of copies _____ 34B. Internal Distribution Codes _____		DOD CONTACT FOR DISTRIBUTION 35A. Name/Title _____ 35B. Organization _____ 35C. Telephone Commercial _____ 35D. Telephone Autovon _____																										
36. COSTS/MANHOURS Script Production/Procurement Copy Reproduction Administration SUB-TOTAL TOTALS		A. Commercial Contract \$ 1. 2. 3. 4. 5.	B. In-House \$ 1. 2. 3. 4. 5.	In-House Man Hr C. Mil D. Civ 1. 1. 2. 2. 3. 3. 4. 4. 5. 5.	38. FUNDING COMMAND(S) 39. FUNDING PROGRAM(S) 42. STATUS A. Current B. Historical C. Obsolete 43. CURRENCY REVIEW OPR																							
SPECIAL PROGRAM 40A. Subject/Course 40B. Director 4. Directing Authority		PROGRAM DIRECTOR'S RATING 41A. 41B.		44. REMARKS (Accompanying material, foreign language version, special restrictions)																								
45. SCHEDULE <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">A. Milestone</th> <th style="width: 25%;">B. OPR</th> <th style="width: 25%;">C. Est Comp Date (Yr, Mo, Day)</th> <th style="width: 25%;">D. Status</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> <td>___/___/___</td> <td></td> </tr> <tr> <td>2.</td> <td></td> <td>___/___/___</td> <td></td> </tr> <tr> <td>3.</td> <td></td> <td>___/___/___</td> <td></td> </tr> <tr> <td>4.</td> <td></td> <td>___/___/___</td> <td></td> </tr> <tr> <td>5.</td> <td></td> <td>___/___/___</td> <td></td> </tr> </tbody> </table>					A. Milestone	B. OPR	C. Est Comp Date (Yr, Mo, Day)	D. Status	1.		___/___/___		2.		___/___/___		3.		___/___/___		4.		___/___/___		5.		___/___/___	
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APPENDIX E
AUDIOVISUAL FACILITIES QUESTIONNAIRE

APPENDIX F

SUMMARY ANNUAL REPORT

PRIMARY PURPOSE: Report to the Public
President
Congress
OMB

AV information in terms of Expenditures
Personnel
Products
AV Services
Facilities
Capital Investment

DATA GATHERING: By Agency

REPORTING PROCEDURE: Publish in Federal Register

EXPENDITURES (\$ Obligated)

Purpose (Admin., training, internal, info., public info., recruiting,
R&D, combat, intelligence)

Product Type (Film, TV, TV spots, still photo, graphics, audio, radio spots)

Budget Category (personnel, O&M*, R&D, reimbursable, procurement,
construction)

Producer Category (in-house, other-government, commercial contract, off-the-
shelf purchase)

Reproduction and Distribution (for each product type)

*include fair rental value for owned facilities

PERSONNEL

Classification (Military, civilian)

Function (Administration, production, distribution, AV service)

Product Type (Film, TV, etc.)

PRODUCTS

Product Type (Film, TV etc.)

Producer Category (In-house, other government, etc.)

Purpose (Admin., training, internal info., etc.)

AV SERVICES

Service Type (Documentation, Production for local , loan of materials,
loan of equipment, facility operation administration support)

Purpose (Admin., training, internal info., etc.)

FACILITIES

Geographic Distribution (Zip Code)

Type (Owner, contractor operated/rented)

Cost (Fair rental value based on assessment or sq. ft. or lease cost)

Product Type (Film, TV, etc.)

Function (Contracting, production, duplication, distribution, AV Service)

CAPITAL INVESTMENT

Facilities - Original purchase price/current value
- New and planned major construction

Equipment Inventory - Original purchase price/current value
- New and planned major procurement

AUDIOVISUAL ACTIVITIES ANNUAL REPORT

Audiovisual activities provide an audiovisual service or produce an audiovisual product. They include equipment, products, facilities, personnel, supplies and acquisitions as they pertain to: (1) still and motion picture photography (including processing); television and audio recording; still, motion picture, television and audio production and reproduction; depositories; distribution; presentation systems; graphic arts; training aids; and (2) audiovisual training and education related to these functions.

INSTRUCTIONS

WHO MUST REPORT? All administrative units in the Federal Government whose expenditure for audiovisual services and products (including government salaries) exceeds \$5,000 per year.

WHAT PURPOSE DOES THIS REPORT SERVE? It identifies audiovisual personnel, products, services, and facilities throughout the Federal Government. The data is required for the summary annual report to Congress, the Office of Management and Budget, the President, and the public. It will also provide management data for agency use to facilitate effective use of audiovisual resources.

WHERE DO I SEND THE COMPLETED REPORT? Send the original form to the central office of your organization addressed as follows

AUDIOVISUAL ACTIVITIES ANNUAL REPORT

_____ (Dept. or Agency Name)

_____ (Headquarters or Central Office)

Make copies for your files and the next higher administrative office in your Department or Agency.

WHEN IS THE REPORT DUE? 1975 data is due January 1, 1976. In future years it will be due on November 1, and should be so noted on your suspense file.

HOW DO I RESPOND WHERE DATA IS NOT AVAILABLE? Where records are not available for a requested data element, please estimate to the best of your ability and prefix that data element with an asterisk. Each Department and Agency is encouraged to establish record-keeping procedures to capture the data elements required for this report.

HOW DO I RESPOND WHERE THE REQUEST IS NOT APPLICABLE? Blocks on the Report Form which do not relate to your audiovisual activities should be left BLANK _____

HOW IS "AUDIOVISUAL" DEFINED FOR THE PURPOSES OF THIS REPORT?

To assist in identifying those audiovisual activities which should be

reported, the following definitions are provided in addition to the above:

Audiovisual Services: Those functions performed in the production, utilization, distribution and storage of audiovisual materials such as tape or film editing, scripting, film processing, sound recording, audiovisual media depository and records center operations; reproduction and distribution of products; broadcast and closed circuit transmission of media via electronic means; loan of audiovisual products and equipment; presentation of audio, still and motion visual products and design or consulting support for audiovisual users.

Audiovisual Products: Material containing sound or imagery for conveying a message. Refers to still photography, graphic arts, still projectuals (overhead transparencies, slides, film strips, etc.), motion pictures (film, video tape and disc), audio recording (tape and disc), and combinations such as multi-media.

Audiovisual Equipment: Equipment used for the recording, production, processing and exhibition of audiovisual products.

Audiovisual Facilities: Physical plants which produce an audiovisual product or provide an audiovisual service.

Exemptions: The following program elements are exempted and should not be reported:

(1) The activities of the Army and Air Force Motion Picture Service and the Navy Motion Picture Service, (2) the audiovisual products of reconnaissance and intelligence operations and (3) photo-mechanical reproduction, cartography, x-rays and microfilm/microfiche production.

CLARIFICATION OF REPORT FORM

Lines

- A 1-5 These identify your facility. Complete all elements requested.
- 6 If all AV operations other than administration and contract monitoring are conducted by non-Federal groups, check ☒ private contractor. If no work is assigned to groups outside the Federal government, check ☒ government. In all other cases the response should be ☒ both.
- 7 Name document, author, and date.
- 8 If your facility is not subject to A-76 review, is not reported, or has not yet been reviewed, leave blank.
- 9 Indicate justification or intended basis for justification for government operated activities.
- 10 State mission in 50 words or less.

B 11-13 Budget - the categories are defined as follows:

In House - O&M

- operating budget for all AV activities performed or managed by the reporting administrative unit

In House - Reimbursement

- cost of services for another administrative unit or agency for which reimbursement is received.

R&D Funds/Grants

- dedicated funds which do not fit in the above categories

Procurement

- budget for the purchase of equipment exceeding \$1000 each item

Construction

- budget for construction or renovation exceeding \$10,000

14. Expenditures should be reported as \$ obligated. The categories are defined as follows:

In-House

- funds expended for AV-related activities performed by the reporting administrative unit.

Other Govt.

- funds used to reimburse other Federal units for AV services or products.

Contract

- funds used for products and services from outside the Federal Government.

NOTE: All cost related items in the report should be recorded as thousands of dollars.

Procurement

- funds obligated for the procurement of equipment

Other

- funds used for grants, contracts, or procurement of goods and services from state and local governments, and non-profit organizations.

Items 16A+B+C+D+E+F should equal 11A+B+C+D+E. Construction expenditures are not reflected in item 14.

C15. Facility: Provide total square footage of buildings owned and rented.

18. Estimated replacement cost of equipment replaces the item "original purchase cost" on previous forms, and should be sufficient to reestablish the operation as is at today's prices.

D19. Estimated value of equipment allows for depreciation and state of repair.

E20.-28. Personnel cost should be based on actual salaries plus benefits,

estimating personnel time in units of 1/10 man years. Utilize the administration category for AV personnel whose role is entirely administrative, contract monitoring, policy making, and other management roles. If a persons major assignment fits within categories 21-27, his administrative time should be assigned within these categories.

29-36. State (or* estimate) the dollars obligated, for each of these functions in the report Fiscal year, including military salaries.

37. This total should= $11A+11B+11C+11D$

F. These totals (in thousands of dollars) are obtained from the next page by adding the expenditures in the private sector and government. All administrative and procurement costs should be included so that grand total 43F = 37A.

G. Major Production should be used for products intended for distribution in multiple copies. Television/radio spots should be reported in section J. Local use materials should be reported on line S4 in section K. Major production includes Government (In-house or production by other agencies) and Private Sector (Contract, Off-the-shelf adopted or adapted materials).

44-47. This lists completed products by total volume Negatives relates to completed still photo original materials (other than slides) intended for making paper prints. Slides indicates completed projection slides including filmstrips, 2 x 2 slides, 3 1/4 x 4 1/4 slides, and 8 x 10 overhead transparencies. Multimedia includes a variety of AV materials other than still pictures, usually produced as a kit or package. The simplest package would include still pictures, a tape recording, and a printed copy of the script.

APPENDIX G Some Specifics of DoD Evaluation Program

FORMAT FOR REPORTING EVALUATION DATA

The following format for reporting evaluation data is adapted from the test of evaluation form used by HQ Aerospace Audiovisual Service at Norton AFB, California 92409. The format is applicable to products, equipment, and facilities, and the specific data sheets are attachments to this general form.

Objective measurements include numerical data from surveys laboratory measurements and field tests. Subjective measurements include estimates and the judgments of specialists including individuals and teams. Subjective measurements have more credibility when clearly defined criteria are used to guide the judges, or where specific products, equipment, or facilities are used as a bench mark for comparison.

All measurements should follow the models provided in DoD/DAVA Procedures for Evaluation [yet to be written] so that the measurement procedure is consistent for all users. Alternative measurement procedures must be cleared in advance with the Chief, Instructional Technology, Directorate for Audiovisual Activities.

EVALUATION REPORT FORMAT

1. Purpose: To determine the suitability of _____
for _____.

- 1.1 Specific objectives
- 1.2 Criterion performance
- 1.3 Projected use
- 1.4 Intended user(s)
- 1.5 Methodology (general - specific in 3 & 4)

2. Description: (of product, equipment, or facility being evaluated.

3. Scope of Test:

- 3.1 Objective measurements
- 3.2 Subjective evaluation
- 3.3 Data not subjected to evaluation

4. Test Environment, Methods & Procedures

- 4.1 Lab/studio/classroom/field/other
- 4.2 Comparison, control, criteria, or reference
- 4.3 Conditions for evaluation of performance
- 4.4 Objective measurements

4.4.1 -----n

4.5 Subjective evaluations

4.5.1 -----n

4.6 Other operating characteristics

5. Limitations of Evaluation Procedure(s):

(e.g., size of sample, time space of measurement, possible bias, etc.)

6. Results: See Attachment 1

7. Conclusions: (Suitability for specified purpose)

8. Recommendations:

PRODUCT EVALUATION PLAN

<u>PURPOSE</u>	<u>TYPE</u>	<u>METHOD</u>
A Product Improvement	Formative e.g. developmental testing	
B Validation	Summative e.g. field testing	
C Management Information	Cumulative e.g. utilization reports	

What is to be evaluated?

AV products for information & timing->\$25,000 to produce
TV products projected for audience->1,000,000 viewers
Film products - >100 copies

Exclusions:

News and public information programs
Productions completed prior to January 1, 1976
Programs costing <\$25,000 of films <100 copies

Evaluation Plan:

- A All products will be subject to developmental testing at a cost not to exceed 5% of the total budget.*
- B One in every ten products will be field tested by an outside agency. The cost not to exceed 5% of the total budget.*
- C All products will have user report forms.

Data Requirements for Formative & Summative Evaluation

Behavioral Objectives
Target Audience
Criterion Performance
Test Instrument
Statistical Procedures
Results
How Findings were Utilized

Data Requirements for Cumulative Evaluation

Place
Date
User Group
Numbers
How Received
Comments

*Occasional products destined for high levels of utilization should be identified for a detailed field evaluation and validation.

GUIDELINES FOR PRODUCT EVALUATION

(Note: These are factors identified as important in reported product research)

1. The intent (outcomes), criterion performance, target audience, utilization factors, and methodology used in the evaluation should be clearly described.
- 2.0 Entering and terminal behaviors and criterion performance should be specified separately for information, skills and attitudes
- 3.0 Audience characteristics should include:
 1. previous experience and familiarity with topic (entering behavior)
 2. interests, predispositions and factors related to motivation
 3. intelligence, formal education and success in school
 4. age, sex and factors related to home environment
- 4.0 Treatment variables should be enumerated as appropriate. These include:
 1. level of verbalization, visual primacy
 2. production values such as color, music, sync, sound, etc.
 3. audience involvement devices such as subjective camera, anticipation, participation, dramatic structure, identification, familiarity
- 5.0 Utilization factors should be described. These include:
 1. instructor role in coordinating product with other experiences
 2. instructor and/or integral introduction, summary and testing
 3. auditorium, classroom or individualized learning
 4. single or multiple use with/without correlated experiences
- 6.0 Testing methodology should be described in detail. This includes
 1. immediate and/or delayed testing
 2. test environment: classroom, laboratory, simulator, field
 3. test method: pencil and paper, demonstration of skill
 4. Sampling procedure and number per cell
 5. Statistical design
 6. Results, interpretations and conclusions
 7. Subjective data

PRODUCT EVALUATION

Date:
Agency: Target Audience
Evaluators: Panel:
Field Test:
Content:
Technical:

Title:
Format:
Running Time:
Color/B&W:
Cost:
Source:

Description:

Correlated Materials:

Alternative products used for comparison:

Comments:

Criteria for Product Evaluation

	Panel of Judges	Field Test	Content Evaluation	Technical Evaluation
1.0 Curriculum Related				
Meets stated objectives	+	+	+	
Accurate	+		+	
Relevant	+		+	
Up-to-date	+		+	
Related to previous learning	+		+	
Objective viewpoint	+			
Controversial/Objective content	+			
Coverage of topic	+		+	
2.0 Audience Related				
Meets learner needs	+	+		
Interest level	+	+	+	
Length	+			
Pacing	+			
Vocabulary	+		+	
Organization	+		+	
Clarity	+			
Level of difficulty	+		+	
3.0 Instructor Related				
Logistical advantages	+	+		
Equal to or better than available alternatives	+	+		

	Panel of Judges	Field Test	Content Evaluation	Technical Evaluation
4 <u>Structural & Technical Features</u>				
4.1 Production Qualities				
Appropriate Use of Medium	+			
Audience Involvement	+	+		
Effective Communication	+	+		
Dramatic/Aesthetic	+			
Sequence & continuity	+		+	
Coordination of picture & sound	+			+
4.2 Image Quality				
Art work/Animation	+			+
Photography/Cinematography	+			+
Integration of visual elements	+			+
4.3 Sound Quality				
Voice	+			+
Music	+			+
Effects	+			+
Mixing	+			+
5.0 <u>Recommended Use</u>				

EQUIPMENT EVALUATION PLAN

PURPOSE

METHOD

- A Equipment Selection
- B Equipment Selection
- C Future Planning
Life Cycle Management

Laboratory Testing
Field Testing
Utilization Reports

What is to be Evaluated?

All AV Equipment > \$100

Exclusions:

Equipment purchased prior to January 1, 1976.

Evaluation Plan:

- A All equipment will be subject to engineering evaluation by assigned laboratories.
- B All equipment will be subject to user evaluation in the field testing phase.
- C 5% of user groups will be surveyed once each year to determine reliability and servicability of equipment designated by inventory # and type.

Data Requirements:

Criteria for Equipment Evaluation

	Panel of Judges	Field Test	Technical Evaluation
1.0 <u>Environmental Factors</u>			
Portability	+		
Ruggedness	+		
Power Consumption			+
Requirement for Air Conditioning			+
Requirement for humidity control			+
Requirement for dust control			+
Requirement for light control			+
2.0 <u>Audience Related</u>			
Mechanical noise	+	+	+
Clarity of picture	+	+	
sharpness			+
brightness			+
contrast			+
color	+		+
steadiness			+
Manual Image Controls	+		+
Automated Image Controls	+		+

	Panel of Judges	Field Test	Technical Evaluation
Clarity of sound	+	+	
frequency range			+
power			+
signal: noise			+
distortion			+
flexibility of controls	+		+
3.0 <u>Instructor Related</u>			
Availability		+	
Ease of operation	+	+	
thread	+		+
rewind	+		+
picture adjustments	+		+
sound adjustments	+		+
sync pic & sound	+		+
User safety features	+		+
4.0 <u>Structure & Technical Features</u>			
Reliability			+
Mechanical design & construction			+
Electrical design & construction			+
Safety of recorded materials			+
Maintainability			+
MTBF			+
Frequency of routine maintain.			+
Need for special servicing equip.			+
Ease of Service			+
Distance to repair facility			+

FACILITIES EVALUATION PLAN

<u>PURPOSE</u>	<u>TYPE</u>	<u>METHOD</u>
A Establish new facility	Formative	Needs Assessment Study
B Terminate facility	Summative	Cost-Benefit Study
C Validate facility	Cumulative	Utilization Reports

What is to be evaluated?

All AV facilities used in production and training

Exclusions:

Facilities designated for combat support & intelligence
Bases employing less than IFTE of AV personnel AND
having less than \$5,000 in AV equipment

Evaluation Plan:

- A New facilities must be justified by a needs assessment study and registered in the DAVA Directory of Facilities.
- B Facilities identified as illegal, duplication, or inefficient will be subject to a cost-benefit analysis, and may be continued, phased down, or phased out.
- C Utilization reports will be filed annually and reviewed to validate need and level of efficiency.

Data Requirements:

FACILITIES EVALUATION

Inputs

1. Budget: in house
 other government
 commercial contracts
 reimbursable []

2. Facilities:

 Owned: Type
 Property value
 Square footage
 Fair rental value

 Rented lease cost
 Operations & Maintenance

3. Materials: Procurement
 from inventory
 inventory audit value []

4. Equipment

 Owned Original purchase
 Rated life
 Equivalent rental value

 Rented: Equipment rented
 Repairs & maintenance

 Planned acquisitions []
 Inventory audit value []

APPENDIX H

DOD INTERNAL INSTITUTIONAL COMMUNICATIONS -- THE NEXT TEN YEARS

A. What are the requirements?

1. A complete communication system including audio, video, data, and interactive capability
2. Rapid access/high reliability/low cost
3. Multi-purpose -- training and education, internal information, public information, management information
4. Centralized and local origination -- wired garrison and distributive network

B. How can these requirements be met?

1. Electronic transmission combining audio, video, and digital technology
2. Standardization of production storage, transmission, playback and utilization formats
3. Combination of hub and tree type distribution networks

C. What alternative technologies should be explored?

1. The role of satellites, lasers, fiber optics, video disc, holograms, new methods of digital storage.
2. The long term impacts of extending conventional technology (films, slides, tapes, print and instructional packages).
3. Combinations of new and conventional technology including photo optical and electronic communication

D. What transition plans and procedures are necessary to advance the internal communication system?

1. Assess needs and resources to determine requirements and how well they are met using existing resources (discrepancy analysis)
2. Establish system goals and criteria, and determine which communication technology can best meet the requirements within the limits of time-cost-personnel constraints

DOD INTERNAL INSTITUTIONAL COMMUNICATIONS -- THE NEXT TEN YEARS (cont.)

3. Perform a cost analysis of capital investment, conversion cost, and operating cost for the existing, transitional and new systems. Design or phased plan to minimize capital loss and disruption of services during the conversion period.
4. Determine possible human problems in transition including displacement of personnel, specialized training, selection of contractors, system design and installation.
5. Life-cycle management:
 - a) for transition phasing
 - b) for system advances